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EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/814,587

Applicant(s)

ENSINGER, WILFRIED

Examiner

Sylvia R. MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6-9, 11-17, and 20-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The combination of the “friction welding process” and other attachment means, i.e. complementary projections (claim 6), press fit (claim 9), threaded (claim 11), dent means (claim 12, shrinking in or on (claim 14), fitting sections (claim 15) and bolted (claim 20) is new matter as it reflects a combination of embodiments, which is not described in the specification.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6-9, 11-17, and 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how the retaining parts can be friction welded as required in claim 1, and have complementary projections (claim 6), press fit (claim 9), threaded (claim 11), dent means (claim 12, shrinking in or on (claim 14), fitting sections (claim 15) and bolted (claim 20).

Point of Clarity

5. Newly amended claim 1 can be interpreted two ways: 1) A product by process limitation in that the friction welding process yields the same product of non-adhesively releasably attached retaining parts as other conventional processes, such as press fit, screw-fit, and shrinking-on/shrinking-off. Or 2) the resulting product will differ due to the bonding layer introduced between the retaining ring parts (not claimed, but support is found in the specification ([0063] and [0128] – [0130].) The rejections below respond to both interpretations in order to expedite prosecution.

Double Patenting

6. Claims 1-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,913,669. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present invention introduces a product by process limitation “wherein the carrier ring is releasable attached to the bearing ring by a friction welding process. Claim 1 of the patent teaches a retaining ring comprising a carrier ring and bearing ring. The carrier ring is made of a first material that has a higher rigidity than the plastic material of the ring. The bearing ring is made of a plastic material and is arranged concentrically on the carrier ring, is held on its side axially opposed to the first front side releasably, non-rotatably with a positive and or frictional connection and without adhesive to join it to the carrier ring. Both the patent and the present invention produce the same product, that is a releasable, non-rotatable with a positive and or friction connection and without adhesive to join the retaining parts (bearing ring to the carrier ring). The product by process limitation is not given patentable weight as the process or steps

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used to produce the attachment between the retaining ring parts does not structurally limit the product.

Regarding the term “releasably attached”, this term has been given the broadest interpretation, of 1) adjustable and/ or 2) separable. According to *In re Stevens*, 212 F. 2d 197, 101 USPQ 284 (CCPA 1954), adjustability, where needed, is not given patentable advance. Additionally, according to *In re Dulberg*, 289 F. 2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (MPEP 2144.04 V C making separable), it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to construct the bearing ring and carrier ring separable for ease of assembly/disassembly for maintenance.

7. In the alternative, claims 1-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,913,669, in view of *Friction Welding*.

The teachings of U.S. Patent No. 6,913,669 were discussed above.

U.S. Patent No. 6,913,669 fails to teach frictional welding as an alternative process of attaching the retaining ring parts.

Friction welding according to Wikipedia is another conventional process of joining parts by using heat generated through mechanical friction between the parts with the addition of an upsetting force to plastically displace material. The excerpt teaches that a polymer layer is heated until molten then cooled forming the joint or at least one of the materials is heated to its molten state to be joined, a bonding layer is formed by the melted materials and the pieces join.

The motivation to modify the teachings of US 6,913,669 et al to use friction welding is that it offers a process of attaching parts without adhesive that will prevent the rotation of the

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parts once attached which is necessary in its use in the CMP environment. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach the retaining rings of 6,913,669 using friction welding.

8. Claim 28 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,913,669 alone or in view of Friction Weld, in (further) view of Chen et al (US 6,390,908).

The teachings of USP 6,913,669 (and Friction Weld) were discussed above.

The patent (and Friction Weld) fail(s) to teach a carrier ring is made of reinforced plastic material.

Chen et al teaches a retaining ring 22, which includes a bottom layer (bearing ring 34) and a top layer (carrier ring 36). The bottom layer is made of a plastic. The bottom layer is made of a fiber-reinforced plastic and the top layer is made of a plastic with a different fiber used to reinforce it. Since the bottom is noted as a wear ring, it obviates the limitation of claim 1 wherein the top material of construction is more rigid than the bottom. The motivation to construct the bearing ring of a fiber-reinforced compound is that it can endure the physical stress of CMP, which obviates the need for frequent replacement. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide fiber-reinforced material for the bearing ring.

9. Claims 30-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,913,669 alone or in view of Friction Weld, in (further) view of Zuniga (US 6,251,215).

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The claims of US 6,913,669 (and Friction Weld) held to applicant were discussed above. The patent (and Friction Weld) fail(s) to claim the carrier ring is made of metal.

Zuniga et al teaches a carrier head made of a retaining ring with an upper (carrier ring 184) and lower part (bearing ring 180). In col. 5 lines 50-67, Zuniga et al teaches that the bearing ring is made of plastic, while col. 6 lines 30-42 teaches that the carrier ring is made of metal.

Combining Zuniga with the apparatus of the prior art fails to teach how the metal used as the material of construction was formed. However, the limitation that the metal of construction was pretreated by metal spraying is a product by process limitation. The combination yields a retaining ring with a bearing ring made of plastic and a carrier ring made of metal the process used to form the metal does not structurally limit the product of the patent in view of Zuniga. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to produce a metal carrier ring using the process cited in claim 30 of the present invention.

Regarding claims 31 and 32: The patent held to applicant (and Friction Weld) fail(s) to teach the dimensions of claims 31 and 32 of the present invention. Zuniga teaches in col. 6 lines 29-42 that the thickness of the metal carrier ring is 300-500 mils and that the relationship with the bearing ring is that the thickness of the bearing ring is greater than the carrier ring. The thickness the layers used to form the carrier ring is a matter of optimization. According to In re Woodruff, 16 USPQ2d 1934, 1936 (Fed. Cir. 1999), it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effect variable such as carrier ring thickness through routine experimentation in the absence of a showing of criticality.

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The motivation to construct the carrier ring of these dimensions is that the retaining ring will endure wafer processing without the need for frequent replacement due to fatigue.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 2, 8, 9, 20, 23, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga et al (US 6,251,215) in view of *Friction Welding*.

Regarding claim 1: Zuniga teaches a retaining ring 110 to be fitted on a CMP apparatus for semiconductor wafers comprising: a carrier ring (upper portion 184) is formed of a rigid material while the (lower portion 180) according to col.5 lines 50-col.6 lines 67 is made of plastic. The carrier ring has fitting elements (bolts 194) fit the carrier ring to the polishing apparatus. Col. 5 lines 47 and 48 recite that the bearing ring and carrier ring are bonded with an adhesive layer 186. In col. 6 lines 45-49, connection via screw and press-fit are recited as alternative methods of attaching the bearing and carrier rings.

Zuniga et al fails to teach frictional welding as an alternative process of attaching the retaining ring parts.

Friction welding according to Wikipedia is another conventional process of joining parts by using heat generated through mechanical friction between the parts with the addition of an

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upsetting force to plastically displace material. The excerpt teaches that a polymer layer is heated until molten then cooled forming the joint or at least one of the materials to be joined is heated to its molten state so that the pieces join.

The motivation to modify the teachings of Zuniga et al to use friction welding is that it offers a process of attaching parts without adhesive that will prevent the rotation of the parts once attached which is necessary in its use in the CMP environment. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach the retaining rings of Zuniga et al using friction welding.

Alternately, citing friction welding as the process used to attach the retaining ring parts is a product by process limitation. The structure used to attach the carrier ring (the bonding layer) to the bearing ring has not been claimed. The product, that is the bearing ring attached non-adhesively to the carrier ring is claimed by Zuniga. Without a showing of criticality, the examiner takes the position that the other methods of non-adhesive attachment such as press-fit or screw-fit are obvious types of friction welding.

Furthermore, Regarding the term "releasably attached", this term has been given the broadest interpretation, of 1) adjustable and/ or 2) separable. According to *In re Stevens*, 212 F. 2d 197, 101 USPQ 284 (CCPA 1954), adjustability, where needed, is not given patentable advance. Additionally, according to *In re Dulberg*, 289 F. 2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (MPEP 2144.04 V C making separable), it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to construct the bearing ring and carrier ring separable for ease of assembly/disassembly for maintenance.

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Regarding claim 2: Zuniga et al teaches that the attachment of bearing ring to carrier ring takes place in the area of the outer circumferential surface (edge) of the bearing ring, see Figs. 2 and 3.

Regarding claim 30:

Zuniga et al teaches a carrier head made of a retaining ring with an upper (carrier ring 184) and lower part (bearing ring 180). In col. 5 lines 50-67, Zuniga et al teaches that the bearing ring is made of plastic, while col. 6 lines 30-42 teaches that the carrier ring is made of metal.

The patent to Zuniga fails to teach how the metal used as the material of construction was formed. However, the limitation that the metal of construction was pretreated by metal spraying is a product by process limitation. The teachings of Zuniga are a retaining ring with a bearing ring made of plastic and a carrier ring made of metal the process used to form the metal does not structurally limit the product of the patent in view of Zuniga. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to produce a metal carrier ring using the process cited in claim 30 of the present invention.

Regarding claims 31 and 32: The patent held to applicant fails to teach the dimensions of claims 31 and 32 of the present invention. Zuniga teaches in col. 6 lines 29-42 that the thickness of the metal carrier ring is 300-500 mils and that the relationship with the bearing ring is that the thickness of the bearing ring is greater than the carrier ring. The thickness the layers used to form the carrier ring is a matter of optimization. According to *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1999), it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effect variable such as carrier ring thickness through

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routine experimentation in the absence of a showing of criticality. The motivation to construct the carrier ring of these dimensions is that the retaining ring will endure wafer processing without the need for frequent replacement due to fatigue.

12. Claims 1-4, 6-9, 11-13, and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMeyer et al (US 2003/0070757) in view of *Friction Welding*.

Regarding claim 1: DeMeyer et al teaches a method and apparatus for two-part CMP retaining ring. DeMeyer et al teaches a retaining ring for a carrier head, comprising a first rigid annular portion (carrier ring) and a second annular portion (bearing ring), see claim 1 of DeMeyer et al. DeMeyer et al further teaches that the second portion 25 (bearing ring) is made of plastic, see claim 8 and [0022] of DeMeyer et al. Claims 10 and 11 of DeMeyer et al teach that securing means (fitting elements) are provided to secure the first portion 15 (carrier ring) to the carrier head (polishing apparatus). Claim 1 of DeMeyer et al further states that the first and second portions are screwed together which amounts a form of attachment that is release, non-rotatable with a positive and/or frictional connection, without adhesive. DeMeyer et al fails to teach frictional welding as an alternative process of attaching the retaining ring parts.

Friction welding according to Wikipedia is another conventional process of joining parts by using heat generated through mechanical friction between the parts with the addition of an upsetting force to plastically displace material. The excerpt teaches that a polymer layer is heated until molten then cooled forming the joint or at least one of the materials to be joined is heated to its molten state so that the pieces join.

The motivation to modify the teachings of DeMeyer et al to use friction welding is that it offers a process of attaching parts without adhesive that will prevent the rotation of the parts

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once attached which is necessary in its use in the CMP environment. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach the retaining rings of Zuniga et al using friction welding.

Alternately, the amendment to claim 1 is a product by process limitation. The structure used to attach the carrier ring (the bonding layer) to the bearing ring has not been claimed. The product, that is the bearing ring attached without adhesive to the carrier ring is claimed by DeMeyer et al. Without a showing of criticality, the examiner takes the position that the other methods of non-adhesive attachment such as press-fit or screw-fit are obvious types of friction welding.

Furthermore, Regarding the term "releasably attached", this term has been given the broadest interpretation, of 1) adjustable and/ or 2) separable. According to *In re Stevens*, 212 F. 2d 197, 101 USPQ 284 (CCPA 1954), adjustability, where needed, is not given patentable advance. Additionally, according to *In re Dulberg*, 289 F. 2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (MPEP 2144.04 V C making separable), it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to construct the bearing ring and carrier ring separable for ease of assembly/disassembly for maintenance.

Regarding claim 2: DeMeyer et al illustrates in Figs. 1 and 2 that the releasable, non-rotatable, positive and/or frictional connection of bearing ring and carrier ring is made in the area of an outer circumferential surface of the bearing ring.

Regarding claim 3: See [0025] of DeMeyer et al.

Regarding claims 4,7-9: Fig. 1B of DeMeyer et al illustrates this limitation.

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Regarding claim 6: DeMeyer et al according to the abstract teaches that upper and lower portion having mating threads.

Regarding claim 11: See [0025] the inset anticipates a ring groove/recesses/channels.

Regarding claim 12: See Figs. 1 and 2 of DeMeyer et al.

Regarding claim 13: Rotation is hindered by the mating parts of the retaining ring.

Regarding claims 20-22: Sections [0025 and 0026] discuss this limitation the screw in this case obviates the bolt, as a bolt is a type of screw.

13. Claims 10, 11, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuniga et al in view of *Friction Welding* as applied in claims 1, 2, 8, 9, 20, 23, and 30-32 above, in further view of Numoto et al (US 2002/0049030).

The teachings of the Zuniga et al discussed above.

Zuniga et al fails to teach:

Regarding claim 10 (circumferential collar), claim 11 (ring groove), and claims 15-17 (ring groove)

Numoto et al a wafer polishing device wherein a snap ring (collar/flange) is used as retaining ring attaching part. The motivation to modify the retaining rings of the *primary references of prior art* is to provide a means of attaching the ring to the polishing apparatus with ease without popping out of the carrier, see [004 and 0010]. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a snap ring to acts as a circumferential collar or flange by releaseably adhering the retaining ring to the polishing apparatus.

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Regarding claim 14: The snap ring of Numoto causes a shrinking-in or shrinking-on process of joining the pieces of the retaining ring of *Zuniga*. The snap ring clamps down or shrinks the pieces together. The motivation to use the snap ring of Numoto is that it provides another process of non-adhesively and releasably attaching the retaining parts of *Zuniga et al*.

The teachings of *Zuniga et al* were discussed above.

Zuniga et al teaches a carrier head made of a retaining ring with an upper (carrier ring 184) and lower part (bearing ring 180). In col. 5 lines 50-67, *Zuniga et al* teaches that the bearing ring is made of plastic, while col. 6 lines 30-42 teaches that the carrier ring is made of metal.

The combined teachings of the patent held to applicant and *Zuniga* fail to teach how the metal used as the material of construction was formed. However, the limitation that the metal of construction was pretreated by metal spraying is a product by process limitation. The combination of the patent held to applicant and *Zuniga* yields a retaining ring with a bearing ring made of plastic and a carrier ring made of metal the process used to form the metal does not structurally limit the product of the patent in view of *Zuniga*. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to produce a metal carrier ring using the process cited in claim 30 of the present invention.

Regarding claims 31 and 32: The patent held to applicant fails to teach the dimensions of claims 31 and 32 of the present invention. *Zuniga* teaches in col. 6 lines 29-42 that the thickness of the metal carrier ring is 300-500 mils and that the relationship with the bearing ring is that the thickness of the bearing ring is greater than the carrier ring. The thickness the layers used to form the carrier ring is a matter of optimization. According to *In re Woodruff*, 16 USPQ2d 1934, 1936

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(Fed. Cir. 1999), it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effect variable such as carrier ring thickness through routine experimentation in the absence of a showing of criticality. The motivation to construct the carrier ring of these dimensions is that the retaining ring will endure wafer processing without the need for frequent replacement due to fatigue.

14. Claims 24-28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Zuniga et al or DeMeyer et al in view of *Friction Welding* as applied in paragraphs above, in further view of Chen et al (US 6,390,908).

The teachings of the prior art of Zuniga et al or DeMeyer et al in view of *Friction Welding* were discussed above.

Regarding claims 24-26 and 28: Both combinations fail to teach a carrier ring is made of reinforced plastic material.

Chen et al teaches a retaining ring 22, which includes a bottom layer (bearing ring 34) and a top layer (carrier ring 36). The bottom layer is made of a plastic. The bottom layer is made of a fiber-reinforced plastic and the top layer is made of a plastic with a different fiber used to reinforce it. Since the bottom is noted at as a wear ring, it obviates the limitation of claim 1 wherein the top material of construction is more rigid than the bottom. The motivation to construct the bearing ring of a fiber-reinforced compound is that it can endure the physical stress of CMP which out the need for frequent replacement. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide fiber-reinforced material for the bearing ring of either Zuniga et al or DeMeyer et al.

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Regarding claim 27: The prior art of Zuniga or DeMeyer et al individually or in combination with *Friction Welding* fail to teach a bearing ring is made of two layers or components.

The prior art of Chen et al in col. 4 lines 19-21 teaches that the bearing ring can have more than two layers. The number of layers used to form the bearing ring is also interpreted as a matter of optimization and depends upon the material of construction of the layers and polishing pad. The motivation to construct a multilayered bearing ring is that the optimal number of layers will be matched with the least replacements needed in order to maintain throughput of the polishing process. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a multi-layered bearing ring to lessen the need for replacement due to wear and tear.

Response to Arguments

15. Applicant's arguments with respect to claims 1-28 and 30-32 have been considered but are moot in view of the new ground(s) of rejection. The new grounds of rejection discuss the non-adhesive attachment process, friction welding as the process claimed of attaching the bearing ring and carrier ring. The limitation is treated as a product-by process limitation as applicant fails to claim the bonding layer, which is the structure that attaches the retaining ring parts. Additionally, it is noted that applicant combines the embodiment of attaching via friction welding with other embodiments to produce more than one attachment processes used to form the attachment between the retaining ring parts which is deemed as new matter.

Conclusion

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16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

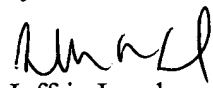
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrie Lund
Primary Examiner


Sylvia R MacArthur
Patent Examiner
Art Unit 1763

October 13, 2006